GrummanWorld

Volume 5, Number 19 October 24, 1986

Special Delivery. *Recently, Postal Service officials had a look at Grumman's LLV prototype at Calverton, Long Island. (Photo by Karl Thoma)*

LLV Plant Taking Shape

From the farmer's field across the road, you can watch Allied's LLV plant in Montgomery, Pennsylvania, steadily taking shape.

"The outside construction work is about finished," says LLV plant manager Bob Conniff. Grumman Allied is converting what had been a Grumman Olson truck body plant into a highly automated production center. It's being built to manufacture Long Life Vehicles for the U.S. Postal Service under a $1.1 billion contract. The new LLV Division of Allied will build more than 99,000 vehicles. The line should start up next April.

Some of the outside construction work had been delayed by the heaviest rains in the area in decades. Nonetheless, Conniff estimates that about 30 percent of the entire project is completed.

The paint drying tunnels and rework booth have already been installed. Pits are being dug for the robotic paint system and the washing and etching booths.

Meanwhile, the Montgomery crew is building seven Olson truck bodies a day several miles away in Montoursville, in what once was a warehouse. There's no room for a paint booth in Montoursville, so the assembled trucks are being painted in an old steel mill in Williamsport, Pennsylvania.

Navy Testing Smarter, Sharper-Eyed Hawkeye

Grumman and General Electric engineers have given an E-2C Hawkeye better radar "eyes" and the Navy is seeing just how good those new eyes are.

The two companies developed the APS-145 radar hardware and software and E-2C control computer software that let the E-2C operators track more targets at greater ranges. The updates also decrease the effects of jamming and sharpen the radar's vision near and over land.

On Tuesday, October 14, a Naval Preliminary Evaluation of the APS-145 radar began at the Naval Air Test Center, Patuxent River, Maryland.

The test is scheduled to last about two weeks. During that time, E-2C number 92 will be flown twice a day by Navy crews. Supporting the test are about a dozen Grummanites who specialize in systems and flight test engineering and manufacturing.

"The Naval Preliminary Evaluation is one of the first hurdles to clear before the radar system can be incorporated in production aircraft," says E-2/C-2 engineering program director John Michaelsen. "The APS-145 is expected to go into production aircraft around late summer of 1988."

Grumman began working on the APS-145 in 1983 under a $100-million Part One contract. The new radar system has been used in flight tests since January 1986. The Part One contract funds development and pre-production work into 1988.

In the near future, Grumman expects a Part Two contract which will fund the development of advanced E-2C control computer tactical software to complement the full capability of the APS-145 radar.

"Each step in the evolution of airborne early warning capability has brought additional requirements," says Jerry Norton, deputy engineering manager for systems development. "As the Hawkeye's detection range and target recognition have increased over the years, new problems, particularly ground clutter, have arisen.

"Most of the Navy's E-2C operations are close to land," says Norton. Buildings, road traffic, and mountains all show up on the radar screens.

Grumman and GE engineers developed an environmental processing system to give the APS-145 a vastly improved capability to separate target information from ground clutter.■

Welcome Intruders. *These A-6E Intruders from squadron VA-145, based at Whidbey Island Naval Air Station, Washington, took in EXPO 86 from the air before flying off with the rest of their squadron for exercises in the North Pacific. The 'Swordsmen' were scheduled to return from the exercises to Whidbey on October 21. The fair, 'World In Motion, World In Touch,' was held in nearby Vancouver, British Columbia, and ended October 13. (Photo courtesy of VA-145)*

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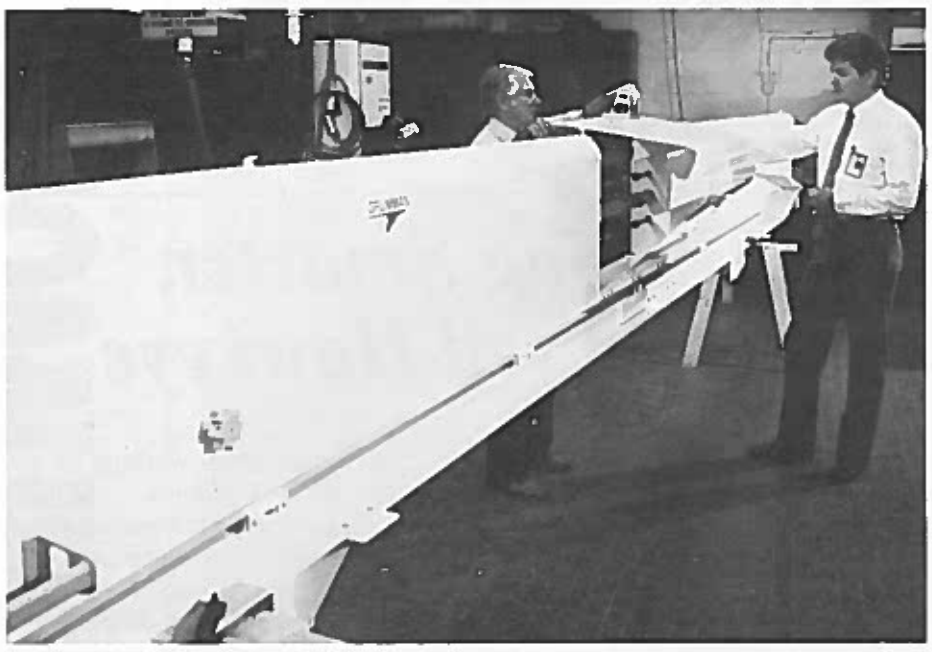

Ready To Roll. *Hans Weiss and Matt Isler check out the Grumman-built thermal bus mockup. Next month, astronauts will try to put it together — underwater.*

Mighty Grip. *Lou Accornero tries out the pistol-grip tool developed by Grumman to handle cold pipe fittings. 'Pistol' describes its shape, but it will actually operate more like tongs. (Photos by Rich Breunig)*

Grumman-Built Mockup Ready For Diving Expedition

HOUSTON, Tex. - Next month, astronauts at Johnson Space Center here will try their hand at pipefitting. They're going to do it the hard way: underwater, in a 75-foot diving tank.

The astronauts will practice assembling a Grumman-built mockup of a portion of the Space Station thermal bus. The thermal bus consists of trough segments, housing lines for ammonia liquid and vapor. The thermal bus forms part of the Space Station's Active Thermal Control System. The tests will rehearse assembly of the thermal bus in space — the underwater environment simulates zero gravity.

"We'll learn if the astronaut can use a power tool to build it," says Otto Schaefer, project manager, "and whether the spaces between the pipes are wide enough for a hand to fit in there. You want to keep the package as small as possible, but it also has to be serviceable.

"Once the tests are complete, we can begin on the logistics of transporting the structure into and out of the Shuttle bay in space," says Schaefer. "We have to figure out ways to do the work in the optimum time — the astronaut will have a lot to do up there, and a limited amount of time to do it. So, we're also looking into robotics."

This summer, mockup assembly tests were done using Grumman's Large Amplitude Space Simulator, which simulates the Shuttle's Remote Manipulator System. Its moving platform simulates the effects of zero gravity. According to Schaefer, some modifications were made to the design of the thermal bus after that round of tests.

In addition to designing and building the mockup, the Grumman team developed prototype tools and assembly procedures for zero gravity. Heat-shrink bonding would enable assembly in space to be quick and easy, while offering leak-tight integrity. The Grumman design uses an alloy called Nitinol, which was developed for joining hydraulic lines on high performance aircraft such as the F-14 and the X-29.

Pipe fittings could be stored at very cold temperatures in a lightweight, portable refrigerator. Once fitted into place, they would warm to ambient temperature and shrink, forming a tight bond. "This is in reverse of the normal situation," says Matt Isler, design engineer. "Usually, metals expand when heated. Nitinol has opposite properties."

Grumman has patents pending on the assembly tools as well as on a pistol-grip tool to take the cold pipe fittings out of the refrigerator. The term "pistol" describes its shape, but the device operates more like tongs.

"Orbiter missions are expensive, so you have to accomplish a lot in a short amount of time of extravehicular activity," says Michael Briganti, an engineer on the project. "A lot of special tools must be designed, and a lot of conventional tools have to be modified."

The thermal bus houses four pipes inside an aluminum micrometeoroid shield. Part of the shield functions as an access door. In the mockup, the pipes are empty, but on the Space Station, they would contain ammonia liquid and vapor.

There could be as much as 60 feet between fittings — which is the length of the Space Shuttle's payload bay. Making the pipes as long as possible minimizes the number of fittings and thus reduces assembly time.

The project was part of Grumman's effort on Work Package 2 of Space Station preliminary design, for which Grumman is a Rockwell subcontractor. The mockup was built in Grumman's Model Shop in Bethpage's Building 5.

It took about four weeks to build the structure. "For us, this was an unusual job because we normally don't build models this big," says Hans Weiss, Wood Model Shop leadman. "Our specialty is small scale models, and the Prototype Shop handles projects like this one."

Weiss also points out that the model required the fabrication of a lot of special stainless steel hardware. "Everyone knew it was a rush job and we got excellent cooperation from all the other areas of the shop," he says.

At this stage, the design could be altered based on test results at Johnson. "This is a pre-prototype configuration of what we know to be the state of the art," says Briganti. "It's still early in the design phase of the Space Station and we would expect to make some changes based on how it performs in the underwater tests."

"Since the assembly procedure has already been practiced on the large amplitude space simulator, the astronauts will be more confident underwater," says Schaefer. "They'll know the job can be done."■

Grumman To Skip '87 Paris Air Show

Grumman will not attend the 1987 Paris Air Show.

"Although the Paris Air Show has produced genuine benefits for us over the years, we have decided that participation in 1987 is not appropriate," said President John O'Brien. "We are in the start-up phase of several major new programs that require heavy initial investments. Additionally, some of the new Federal Acquisition Regulations increase the costs of financing and other aspects of defense contract work. As a result, we are examining expenses in every part of our business and eliminating those that are not absolutely necessary."

Vandenberg Work Force Reduced

Last week, Grumman Technical Services Division notified two-thirds of its work force — 180 people — at Vandenberg Air Force Base, California, that their employment is terminated effective October 31.

The U.S. Air Force announced earlier this month that 1,000 contractor jobs at Vandenberg would be eliminated because the Vandenberg Space Shuttle complex will not become operational until 1992. The Air Force previously targeted the work force reduction for May 1987, but accelerated its schedule to gain significant cost savings.

Technical Services Division President Fred Haise said that job placement services will be made available to all affected employees, including resume preparation and referrals for job opportunities at other Grumman divisions. Assistance will continue after the termination date.

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Army Expanding Mohawk Work At Stuart, Fla.

The Army Aviation Systems Command has awarded the Aircraft Systems Division three contracts for work on the OV-1 Mohawk program at Stuart, Florida.

Leading the list is the $17 million Block Improvement Program in which communication, navigation and cockpit display avionics will be upgraded.

"We'll replace existing equipment that's becoming difficult to support with updated systems," says program manager Jim Flowers. "Over 20 systems will be changed in the aircraft, and these changes will increase maintainability while reducing the pilot's workload."

After some engineering work is performed in Bethpage, Stuart Operations will install the systems in an OV-1D. This prototype aircraft will go to the Army for testing in 1988.

The Army will later award a production contract. Production would start in late 1988. The service is expected to upgrade its current fleet of Mohawks — which now encompasses over 120 aircraft.

The Mohawks have proved to be very durable aircraft for the Army. Grumman delivered the first Mohawks in 1960 and produced 360 of these battlefield surveillance craft in versions from the OV-1A to the OV-1D and the reconnaissance RV-1D. Many of the earlier OV-1B's and OV-1C's have been updated at Stuart over the years to the newer RV-1D electronic intelligence and OV-1D versions. Stuart has been designated as the fixed wing rework facility for the Army's Mohawks.

Staying A While. *'Mohawk Country' is Stuart, Florida, but this Mohawk is in Calverton for the Army's Block Improvement Program. Program manager Jim Flowers (R) discusses some of the planned engineering work with project engineer Cliff Fenwick (C) and Fred Peterson of Flight Test. (Photo by Gerry Costello)*

The Programmed Aircraft Restoration continues at Stuart under a $10 million contract. The restoration includes depot-level maintenance and a service life extension program to increase the fatigue life of the airframe from 7,000 hours to 12,000. The contract involves about 100 people at Stuart who will overhaul and maintain 18 aircraft. They will deliver two of these aircraft a month starting next May.

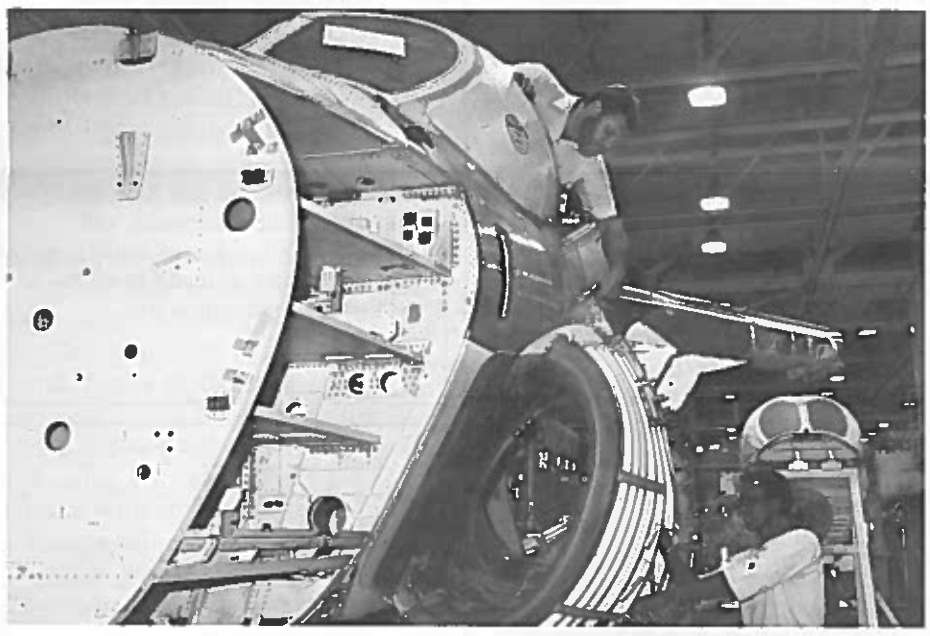
In order to maintain the service life of the Mohawks, the Army awarded Grumman a $3 million, three-part contract for a fatigue testing and monitoring.

"We took an old OV-1B from the desert storage area at Davis Monthan Air Force Base in Arizona and are now converting it structurally to an OV-1D," Flowers explains. "Once the conversion is complete, we'll ship the plane to New York and put it in the fatigue test hangar in Building 5."

The plane should arrive in Bethpage in March; tests are scheduled to start in May.

In addition to getting mounds of information from this full-scale fatigue test of the wings and fuselage, a monitoring program will also be developed. This is a set of procedures that Grumman will recommend that the Army follow to determine how the aircraft is actually being flown in service.

Aircraft Systems will also develop a prototype acceleration — "g-limit" — warning system. This tells the pilot when a maneuver is stressing his Mohawk's structure near its limit. The new system will give the pilot an audible warning through the speakers in his helmet.■



Last Minute Adjustments. *Frank Miller (top) and Rudy Reed wrap up work on the first A-6F forward section in Building 2, Bethpage. It and the center and aft sections were ferried to Calverton earlier this month. (Photo by Bob Settles)*

A-6F Intruder Prototypes Move Into Home Stretch

BETHPAGE, L.I. — Earlier this month, the forward, center and aft sections of the first A-6F Intruder arrived at Calverton from Building 2 in Bethpage.

Grumman is building five prototype A-6F Intruders as part of its contract with the U.S. Navy. Grumman plans to deliver 150 production A-6F Intruders to the Navy and the Marines by 1995. The first production A-6F all-weather medium attack aircraft is slated to roll off the production line in October, 1989.

"Bethpage and Calverton are working together as a team to get this first development aircraft ready for its first flight," says Bob Booth, Building 2 manager. "The 300 people who worked on the program over the past year gave up vacations, and worked overtime and weekends to make this program a success."

The first of the five prototype A-6F's will begin test flights in mid-1987, with the other four planes taking off every two months thereafter.

The A-6F will have advancements that make it more survivable, maintainable, and reliable than the earlier model. These include a new Norden radar system, which will be more powerful and jam-resistant than its predecessor.

The A-6F will also have new, more powerful General Electric engines and two additional weapon-store stations. The upgraded aircraft will be equipped with the latest avionics — a total of 125 black boxes.■

Retiree Obituaries

Forrest T. Pearsall of 89 Olive St., Huntington Sta., N.Y., died September 15, 1986. He retired in 1976.

Joseph A. Powers of 188 Mark Tree Road, Centereach, N.Y., died August 28, 1986. He retired in 1985.

Frederick E. Reich of 15 Linden Ct., Hicksville, N.Y., died September 10, 1986. He retired in 1968.

John L. Rowe of 659 Glover Pl., Chula Vista, California, died September 17, 1986. He retired in 1980.

Charles J. Sann of 3709 E. Lombard St., Baltimore, Maryland, died August 23, 1986. He retired in 1984.

Henry C. Ward Jr. of 8 Rosemary Dr., N. Massapequa, N.Y., died August 29, 1986. He retired in 1983.

Grumman Dependents Encouraged To Compete For 1987 Scholarships

Tuition grant increases to $6,000 in '87

Applications for the 1987 Grumman Science and Engineering Scholarships are now available. All Grumman sons and daughters who are high school seniors interested in engineering or science careers are eligible to compete. Application deadline is November 1.

Each year, Grumman awards a minimum of 12 scholarships. In 1987, the company will increase its yearly grant to $6,000 per student. Approximately half of the scholarships go to sons and daughters of Grummanites all over the country; the remainder to Long Island high school seniors.

Scholarship winners are also offered summer employment and a permanent job with Grumman after they graduate college.

Applications are available in Grumman administration offices throughout the country and at high school guidance offices on Long Island. For more information, contact Paul Sluiter in the Scholarship Office, (516) 575-2682 or Ext. (111) 52682.

Grumman, L.I. Schools To Exchange Ideas

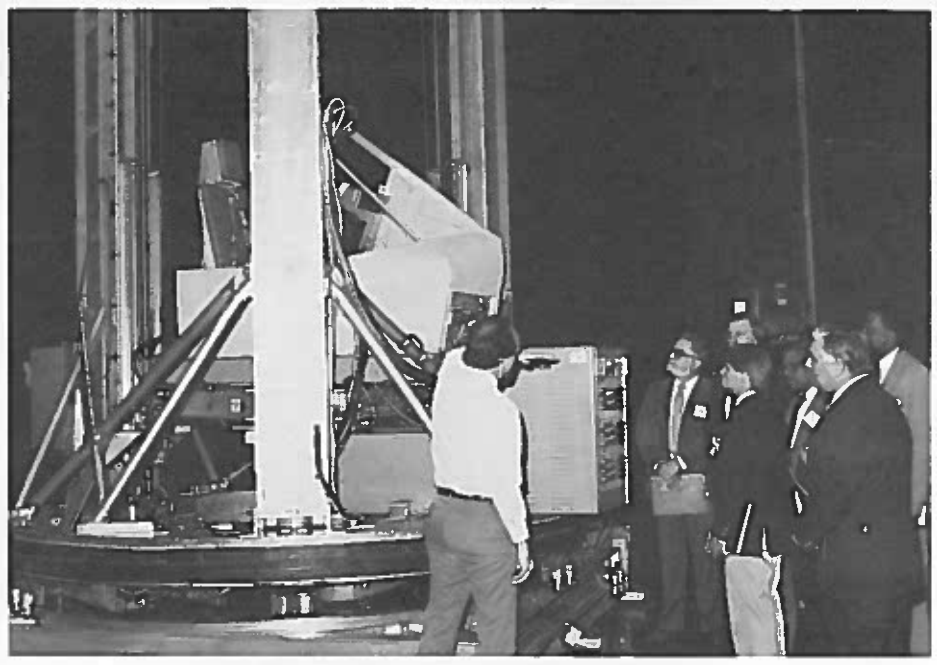
Partners in Education/Industry Program encourages a joint effort in learning

"America's classrooms are on the cutting edge of technology," NASA teacher-in-space Peggy Lathlaen told a recent gathering in Grumman Headquarters, Bethpage. Lathlaen, who is on sabbatical from teaching gifted children in Houston, spoke at the kickoff meeting of the Partners in Education/Industry Program.

Under this new program, Grumman is teaming up with Long Island school districts where the company has major operations on Long Island: Bethpage, Melville, Great River, and Calverton. The exchange program serves a dual purpose: both teachers and students will receive technical assistance and expertise from Grumman, and in turn, the company helps educate its future work force.

Lathlaen discussed the technological revolution and its impact on education. "Grumman has chosen teachers as its voice to reach the upcoming work force," she said. "The company realizes that teachers have the leverage to impact many, many students."

Through the partnership program, Grumman offers school districts tours, lectures, slides, tapes, use of its technical library, and helps with career days and science fairs. Fifteen Grumman volunteers throughout company facilities on Long Island will assist in the lectures, tours and career days.



Grumman wants to alert teachers to skills that job applicants lack and help them find ways to develop these skills. The program also aims to boost students' interest in pursuing technical careers.

For instance, not far from the Melville complex at Walt Whitman High School in South Huntington, Grumman engineers are helping three students with their independent science and engineering projects. In addition, Grummanite Hal Wexler, project engineer at Grumman Space Systems in Princeton, New Jersey, recently talked about nuclear fusion with 100 Walt Whitman High School science students.

In the East Islip School District, 42 teachers toured Bethpage, visiting areas from accounting to the History Center. Grummanites also visited their schools.

"We must have open lines of communication with industry," said Mike Griffen, assistant superintendent of the East Islip School District. "The Long Island business world has a stake in our success because it has great difficulty in getting people to relocate here. That means that the labor pool has to come from the Island — and that's the product of our local schools."■

Communication Ties. *NASA teacher-in-space Peggy Lathlaen recently lectured at the first meeting of the Partners in Education/Industry Program in Bethpage. Ralph Palumba (photo at left), director plant operations — Engineering Development Center, Bethpage, gives the East Islip School District staff a tour of Building 14, where they viewed the large amplitude research simulator, that simulates the Space Shuttle's manipulating arm.*

Disks Don't Get Floppy In Illinois Downpour

ELMHURST, Illinois — Grummanites Rick Altosino, Bill Milano, and Larry Schwartz recently performed an act of high-tech heroism: they saved a client's database from a flood.

The three men work at Grumman Systems Support's Chicago branch office, near Des Plaines, a suburban area that suffered massive flooding at the beginning of this month.

"It rained for 11 days straight," recalls Altosino, a senior field engineer. "A customer of ours, On-Line Business Systems of Des Plaines, was unaware that they were in flooding danger until they were notified by Grumman area manager Vito Cristino, who was alarmed by television weather reports forecasting several more days of rain.

"On Thursday, October 2, field engineer Bill Milano went on a service call to On-Line. They keep their computers in a basement, and when Bill arrived, there was already a few inches of water on the floor. The computer systems manager, Kevin Close, was trying frantically to remove the water with a wet-vac."

Milano warned Close not to try to salvage the computer hardware, but to back up the computer data onto tape. Doing so would enable the data to be easily reconstructed on another computer system.

Close followed Milano's advice but there wasn't enough time for him to finish. Before turning off the power and leaving the building, he removed the system's disk packs. Eventually, the basement filled up with five feet of water.

Close then called Larry Schwartz, national technical support director, for assistance. Schwartz had an idea. Both On-Line and CompreData, another Grumman customer, are accounting firms and both use Data General computers. Unfortunately, their disk drives weren't compatible.

Schwartz decided to loan On-Line two Winchester disk drives that were in the Grumman office. A Winchester is a fairly common type of disk drive that can be hooked up to virtually any computer. But first, Schwartz had to transfer the 300 megabytes of data from On-Line's portable disk packs to tape at his father's company. He then brought the tape to the Grumman office.

Altosino transferred the data to the Winchester drives. "It was a very complicated process, and we spent from 6 p.m. to 12:30 in the morning putting it all together," says Altosino. "We picked up the Winchester drive and brought it to CompreData in Lombard, and hooked the disk drive up to their computer.

"CompreData is really being a champ about this, even though as an accounting firm, they're in direct competition with On-Line," says Altosino.

In the meantime, the Grumman office warned other customers in the vicinity of the Des Plaines River to save their data by tape backup. Fortunately, nobody else experienced damage.

Schwartz notes that as an accounting firm, On-Line would have been unable to conduct business without access to its computer files. "They have several hundred clients, and their whole operation is computerized," he says. "Now, even though their computers are scrap, their system is up and running."■

Saving The Day. *Chicago office Grummanites (from L) Larry Schwartz, Rick Altosino, and Bill Milano display equipment used to salvage a customer's data during the recent flood in suburban Des Plaines. The Grumman Systems Support team salvaged the customer's data by devising a complicated way of copying onto another medium. The Grumman office also loaned the customer computer equipment until it is able to replace the hardware lost in the flood.*

Unit Values

The Grumman Employee Investment Plan has reported the following unit values as of August 31 (compared to July 30 figures):

Equity Fund
3.774 up from 3.561

Fixed Income Fund
5.600 up from 5.470

Guaranteed Income Fund
2.322 up from 2.301

Company Stock Fund
$25.63 up from $25.38

Note: It usually takes several weeks to formulate these values. EIP members can call Ext. (111) 54400 (outside Grumman, call 516-575-4400), for a recorded message which is made as soon as the new unit values are available.

Retirees

On behalf of our fellow workers, *Grumman World* salutes the following Grummanites for their contributions to the company and wishes them well in their retirement. Those who have recently retired are:

Mary P. Cohen (44), Quentin R. Hannah (30), Randolph F. Soper (43), Florence Spudis (44), Robert S. Rulon (47), Henry C. Sutton Jr. (25), Lucille E. Musil (30), Lige W. Mathis Jr. (30), Julius A. Brescia (43), Irene C. Peterson (237), Lawrence G. Kosby Jr. (2), Charles O. Richardson (7), Bruce R. Tuthill (77), Catherine LaPenna (44), Willy Krupitsch (2), George E. Henderson (8), Nicholas C. Karmeris (77), Lois M. Savage (15), Edwin J. Schretzmann (6), Peter M. Coniglio (52), Milford R. Combs (1), Hugh R. Clements (2), Frank J. Kopyta Jr. (2), Robert E. Metz (1), Edward J. Kelly (35), Doctor B. Crews (3), Louis LiCausi (3), Constance D. Walker (30), John E. Morrissey Jr. (5), Paul P. Pette (2), Martin R. Frith Jr. (6), John Kraseski (3), Ruth H. Campbell (2), George G. Cohen (5), Vinton R. Soyars Jr. (7), Herbert Herrmann (289), Laurence Gagliano (24), Beatrice A. Barry (3), John C. O'Hare (6), William B. Goodman (18), Everett H. Harns (525), Robert E. Amott (GHQ), Sol Schneider (2), Julius Goldfarb (43), Charles E. Miller (5), Emma J. Gumbs (15).

Next Edition: November 14th

Job Shoppers Are A Welcome Resource At Grumman

Company pin meetings have traditionally offered people the chance to talk to corporate officers about what's on their minds. Grummanites wasted no time at last month's pin meeting in Bethpage. They wanted to know the company's position on hiring job shoppers.

The company hires these temporary workers through "engineering job shops" or temporary help agencies. Positions filled by job shoppers range from secretary to aircraft mechanic to software engineer.

At the pin meeting, some people voiced concern over the increasing number of job shoppers now working for the company. Why are job shoppers paid more than the average Grummanite in the department? Why are some here for several years?

"Job shoppers are an important part of our work force," says Will Bischoff, vice chairman-Technology. "There are many advantages to hiring job shoppers. It gives us flexibility; we can fill jobs immediately. It allows us to change our job skill mix quickly."

'Out of the total Grumman work force of 35,000, four percent are job shoppers.'

The aerospace industry is well known for its boom or bust cycle; huge swings in employment are the norm. Job shoppers serve as a buffer to protect against the ups and downs of the industry. "For example, if a program is suddenly cancelled or delayed for a few months, we can decrease our work force without laying off full-time Grummanites," says Bischoff.

He points out that the Aircraft Systems Division recently released a number of job shoppers in Technical Operations when their specific skills were no longer needed. "At the same time, we hired another group of people in a different skill to fill another requirement."

"Out of the total Grumman work force of 35,000, roughly four precent are job shoppers," says Bob Bradshaw, Grumman vice president and secretary. During the Apollo era in the 1960s, Grumman had 2,000 to 3,000 job shoppers on the payroll.

There are now about 1,400 job shoppers working at Grumman. While every division fills positions with temporary workers as needed, Aircraft Systems Division hires the most job shoppers by far.

There are three types of job shoppers now working at Grumman: retirees; people who are hired on a temporary basis during a peak period; and those who have highly marketable skills and prefer not to be employed as "regular" Grummanites.

Many job shoppers often seek regular employment at Grumman after working here. Since January, nearly 200 job shoppers have joined the regular work force.

It's no news that Grumman and other high tech firms are searching for experienced engineers in many disciplines. Aside from the major A-6F and F-14D updates and the Joint STARS program, Grumman has updates and improvement efforts ongoing in almost every other program in the company.

"Even though we've doubled our engineering work force in the past five years, there are still not enough engineers," says Bischoff. This is particularly true in critical skill areas such as systems engineers, computer engineers and software specialists.

To supplement this work force, Grumman hires job shoppers. Some are here for a short duration. Others are high tech specialists and might remain at Grumman for a longer period of time depending on the company's need. These people are paid high salaries for their risk-taking and reduced benefits.

Many job shoppers market their skills to the highest bidder. They enjoy the freedom of moving from company to company. They do not receive Grumman benefits — group insurance, pension, employee investment plan, vacation, holidays, and paid absences. They get only one Grumman benefit: a turkey at the year-end holidays. Their job shop house pays them for six holidays a year.

These fringe benefits are not computed into Grummanites' salaries. For the average Grummanite, these benefits amount to an additional 40 percent of their salaries. While the more experienced job shoppers may bring home somewhat more pay — compared to their Grumman counterparts' base salary, they often must buy their own medical coverage, pension and life insurance. In addition, job shoppers have little job security. Grumman can terminate their employment at any time.

There are a few job shoppers that have been working at Grumman long enough to have earned a service pin if they had been regular employees. "These people usually have highly marketable skills; they chose to remain job shoppers and not join the regular work force," says Bradshaw. "In addition, many long-term job shoppers demand salaries that do not fit into our salary ranges. As a result, they often will not accept an offer of employment."

Larson Elected President Of Grumman International

In addition, Terry appointed Data Systems VP

On Thursday, October 16, the Grumman board of directors approved the election of Rolf Larson as president of Grumman International, Inc. Larson will succeed Mike Pelehach, who retires October 31. Grumman International markets Grumman products and services overseas. The company ranked seventh among U.S. exporters of defense equipment in 1985.

Larson joined Grumman in 1959 as a technical writer. From 1969 to 1977, he held a variety of positions in contract administration and negotiation. In 1977, he became director of business operations for Grumman Aerospace.

In June, 1979, Grumman Corporation elected Larson vice president—development. He was elected vice president of Grumman International in February, 1985.

In addition, the Grumman board appointed Dan Terry vice president—customer requirements for Grumman Data Systems Division. Since last fall, Terry had served as program vice president, Joint STARS, for the Melbourne Systems Division.■

Phil Vassallo Dies At 51

Phil Vassallo, Aircraft Systems Division senior vice president of Product Operations, died suddenly on Thursday, October 16. He was 51.

Deeply involved with procurement for over 12 years, he once said it was like a "window on the world for Grumman, one through which the company looks out, and one through which the world can look in."

Vassallo began his Grumman career in 1957 as a structural engineer. In 1967 he was named assistant to the director of Machining Operations, deputy director in 1969 and director in 1970. Three years later he became deputy director of Manufacturing Operations.

He had his first contact with the procurement world in the Sixties, as part of an engineering-manufacturing-procurement team that worked with suppliers for the F-111 and Lunar Module programs. He returned to that part of the business in 1974 when he was named director of Procurement Operations for Grumman Aerospace.

That was a time when high energy costs and inflation made the job of buying goods and services for Grumman very difficult. Yet, he knew his team could overcome any obstacles.

"There's one thing I've found out while I've been working for Grumman," he said in 1976. "Whether you're in engineering, manufacturing, procurement or some other area, people seem to have one common goal: dedication in wanting to get the job done."

In 1976, Vassallo was elected an Aerospace vice president and senior vice president-Corporate Material Operations in 1979.

In 1984, his role expanded when he took over a new group: Product Operations. It included Manufacturing Operations, Quality and Safety Operations and Material Management. When the company divisionalized last year, Product Operations became part of Aircraft Systems, responsible for Bethpage, Calverton, Milledgeville and Stuart Operations and Material Management.

Aircraft Systems President Renso Caporali said, "Phil was well liked and well respected, not only for his broad background and talent, which made him such a valuable asset to the company, but for his human side, too. We will all miss him."

Vassallo is survived by his wife, Mae, and their three daughters.■

Let Us Know

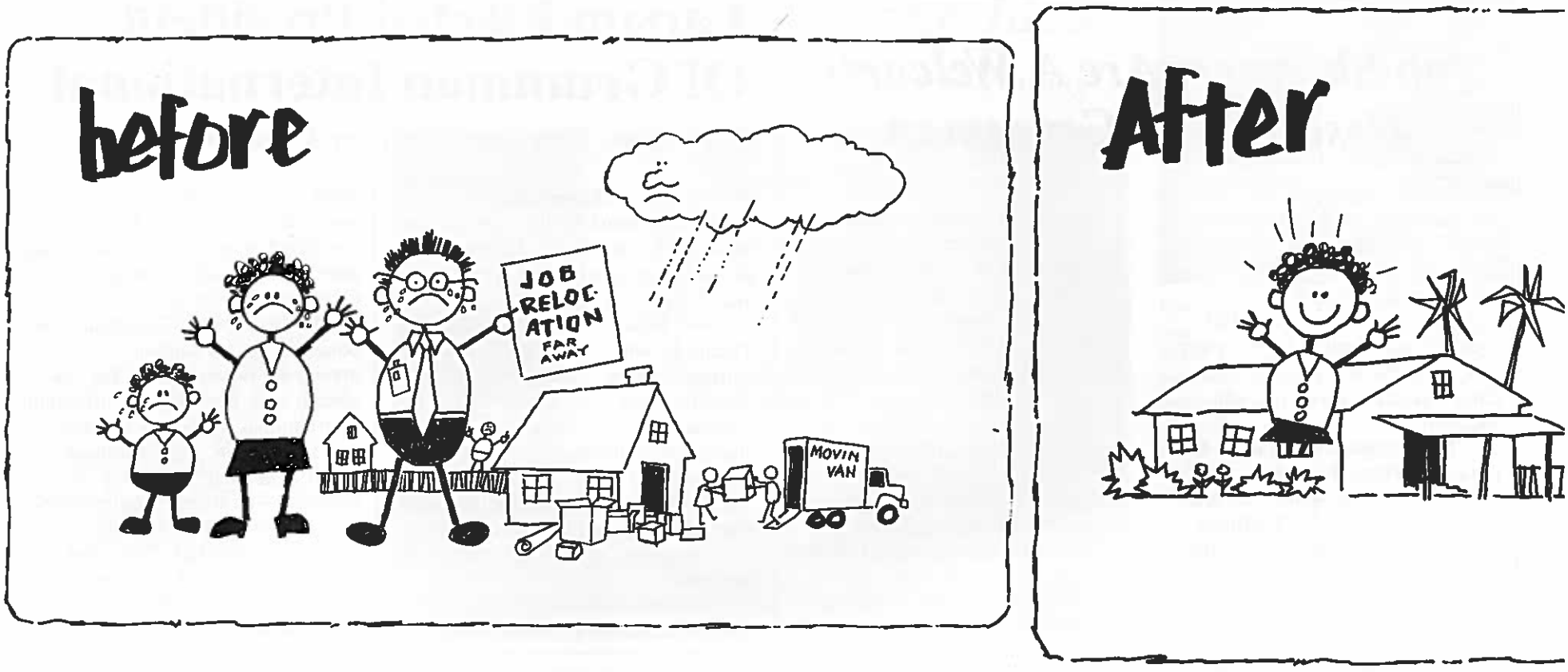
We don't want to do all the talking.

We'd like to know what you think about the things you see in these pages, and what you see going on in the company. Serious comments, questions and complaints are welcomed, and will be answered by the people most qualified to respond.

We'll get back to you promptly with their replies. If the topic is of general interest, we'll print it.

Letters to the editor should be addressed to *Grumman World*, 1111 Stewart Avenue, A22-GHQ, Bethpage, N.Y. 11714, and should include your name and address. Letters may be edited for clarity or space.

Date To Remember:
December 9th
25-year Luncheon
Colonie Hill, L.I.



Transplanted Grummanites Find There *Is* Life (

Through variety of programs, Grumman aims to make relocations as painless as possible for Grummanites and thei

Relocating. The word conjures up images of packed boxes, stuffy hotel rooms, sullen teenagers vowing to run away on moving day.

Constantly shuffling people around the country has never been Grumman's style. Even with all the new buildings that have gone up in the last two decades elsewhere, close to three-quarters of all Grummanites work on Long Island. Still, in an average year, Grumman relocates a hundred or so people and their families. And for such jobs as field representatives at Naval bases, several relocations in a career are the norm.

Earlier this month, the Space Systems Division announced that it will relocate its civil space programs group to Houston. Furthermore, a spate of company programs soon will start up off Long Island: the Joint STARS program in Melbourne, Florida is the most prominent example. A nucleus of company veterans is needed at such places, so Grumman tries to familiarize these employees and their families with the new area, to make moving as painless as possible for them.

"To transfer an employee somewhere always involves some sort of difficulty — and we have to respond to that," says Hank Colon, a field administration representative for Grumman. "Plus, each transfer is different. We try to help each person with his unique problems. You can't satisfy everybody the same way."

Some families will view moving to a new place as an adventure that will make their children more outgoing and worldly. Others dislike being uprooted from their lifelong homes, and fear transience will take a toll on their families. Single employees who relocate off Long Island may view it as a chance to better establish themselves in a low-cost area, while others fear loneliness in a cultural backwater.

Many see moving as a chance to become a bigger fish in a smaller pond, while others feel isolated from Grumman's main L.I. operations.

Career wise, many see it as a chance to become a big fish in a smaller pond. Others will feel isolated from Grumman's main Long Island operations. One important distinction about Grumman is that relocation is usually optional.

The basic corporate policy provides for 60 days' hotel accommodations, if required, for the employee and his or her family, moving services, and help in locating a new home. A few years back, when mortgage rates went through the roof, that took the form of mortgage assistance.

The two-income family has had a sharp impact on employee relocations. "Since a majority of Grumman's employees are men, usually, the person we relocate is a man," says John Marshall, director of Field Administration. "In this day and age, his wife could have a very good job and not want to give it up. If the employee's spouse works for Grumman, there's a remote chance he or she could be placed. That's usually easier when the employee is relocated from somewhere else to Long Island, for the simple reason that this is where most of our jobs are."

Valorie Cecere is one of a growing number of women professionals who are being relocated. A lifelong New Yorker, Cecere was asked to relocate to Huntsville, Alabama, in conjunction with the Engineering Analysis and Data System. Grumman Data Systems installed EADS for NASA's Marshall Space Flight Center, and needed people to staff its Connectivity Assistance Technical Support (CATS) center.

Since Cecere's husband, Vincent, is on disability leave from Grumman, they decided to make the move. This past April, the Ceceres moved into a custom-built contemporary ranch house on four acres of land. The price tag: $87,000. A comparable house would have cost $350,000 on Long Island.

Moving south meant a promotion to senior telecommunications coordinator. It also meant additional job responsibility, and, since EADS is one of the most advanced supercomputer networks in the world, the chance to be on the cutting edge of technology.

"I had thought of Huntsville as a small, rural town, and it's not," says Cecere. Instead, it's an attractive city of 150,000 in the Appalachian foothills, with a high concentration of high-tech companies.

Initially, she says, the EADS crew felt rather isolated — for instance, the new people hired to work on the program didn't know where to turn with a question about benefits. That changed when Dean Pfeffer arrived last spring as the area's field administrator.

Would Cecere ever move back to Long Island? "Only if you twisted my arm," she proclaims.

Beginning in January, between 150 and 200 Long Island Grummanites will move to Melbourne, Florida to work for the Grumman Melbourne Systems division. In addition, it is expected that another 100 may be asked to go short term. That is the largest en-masse relocation the company has made since the mid-1970s, when over 300 employees went to Iran to work on the F-14 program.

"Melbourne Systems won't just be Joint STARS," says Marty Clark, director of human resources for the division. "People will be getting in on the ground floor of a new division that will continue to pursue new business, taking advantage of our systems integration know-how. In that sense, the people that go should have a number of opportunities for advancement.

Some families view moving to a new place as an adventure that will make their children more outgoing, while others fear transience will take a toll.

"Besides not being international, the big difference between this program and the Iran move is that Iran was temporary. The employees were asked just to button up their houses for a few years. Now, we'll be asking people to move for good."

Clark doesn't dismiss employee perceptions about a place. Many Long Islanders, for example, are convinced that Florida schools are inferior to New York's. Clark has materials with the basic facts about the Brevard County, Florida schools, where Melbourne is located. For instance, SAT scores are higher than the U.S. average — particularly in mathematics.

"My job isn't to convince the Grummanite that the schools are great," says Clark. "All I can do is provide accurate information, so he or she can make a sound decision."

Clark looks forward to moving to Florida himself: he worked at the Cape during the Grumman Lunar Module program. "To those who miss New York City culture, I say, with the greater purchasing power you have in Florida, you can fly to New York several times a year, stay in a hotel, and see several plays — which is more than most of us do when we live here."

Single employees might ask: is there life outside a metropolis? Well, John Noack likes it fine. Five years ago, Noack moved to Milledgeville, Georgia to serve as assistant to then-vice president Bill Zarkowsky. He's since become deputy

ff Long Island

imilies

director of Technical Operations at Milledgeville. Getting into technical management would have eluded him in the pool of 24,000 Grummanites on Long Island, he says.

A side benefit is the warm weather and the cost of living. Noack owns a two-story contemporary house on a lake; boating and waterskiing are at his back door. And just a few hours away are the lower Appalachian mountains, with their wealth of recreational opportunities.

"I'd never be able to have the same lifestyle on Long Island," says Noack. "But you've got to know how to make more of your own entertainment. I mean, when I first moved here, you could go to a movie, a nightclub in town.

"When I was on Long Island, I was 90 minutes to New York City. Now, it's a 90-minute drive for me to get to downtown Atlanta. It's a fantastic city. It has most of the advantages of New York with few of its drawbacks."

For about 400 Grummanites, the workplace is a military base or an aircraft carrier.

They are the Grumman technical and logistics representatives who support aircraft and ground maintenance equipment at sites worldwide. The largest number are at the Norfolk, Virginia, Naval Air Station, and Miramar NAS, near San Diego.

The field reps move frequently in comparison to most other Grummanites. This flexibility in relocating — even spending months at sea — is inherent in the job.

"When the billet for a person's services ends, we first look to see if there is another requirement for those services at the same site, such as with a different squadron," says George Tomlinson, director of Field Operations and Aircraft Services. "If not, we try to retrain the rep so he can stay at the same location doing a different job. Relocation is expensive.

"But ultimately, we may have to relocate a person. And of course, with smaller sites, we have less flexibility."

Typically, employees volunteer for overseas assignments. The company takes great strides to make the employee and his family understand the rigors entailed by living outside the U.S. That might take the form of language lessons and trans-cultural orientation sessions.

At the end of this year, and on into 1987, 40 Grummanites and their families will be relocated to Cairo, Egypt. They'll support the Egyptian Air Defense Force's E-2C Hawkeyes.

In addition to permanent moves, Grumman handles short-term relocations, too. In late 1975, Paul Turtzo moved to Iran with his wife and teenaged daughter and son. The Turtzos returned in November of 1978 — right before the collapse of the Shah's rule.

They've moved several times since they came back to the U.S., but the Turtzo's home is still bedecked with items from the East: a handmade Persian rug, a Russian samovar in a corner, Islamic art. "Overall, it was a positive experience for all of us," Turtzo recalls. "You feel very secure when you've done the same thing all your life. But taking on a new challenge, in a new place, forces you to grow. I think I'd be ready to pack up again — and my wife likes it, too."

Turtzo says the initial adjustment was easier for his daughter than his son, though he eventually came to enjoy it. The assignment made good financial sense, too — Turtzo received bonus pay for a hardship assignment, and paid minimal income tax. The only real difficulties were working at the air base itself — it was hot and dusty, and a long ride from the housing compound — and constantly watching out for strange Middle Eastern maladies.

Turtzo never saw public hostility toward Americans until the final months. "When we left, there were tanks and soldiers with submachine guns in the streets," says Turtzo.

Turtzo later worked as a test engineer on the M-161 Hydrofoil, which took him to South Florida, back to Long Island, and to Israel for four months. Now a test engineer on the A-6 program, he is quite content on Long Island for the time being.

"It's crowded, the taxes are high, it's got the LIE," says Turtzo, "but it's a beautiful island. I always relish coming back."

Not all of the moves Grumman handles are from or to Long Island. In 1983, Rich Ripp moved from Columbus, Ohio, to Sturgis, Michigan. It's a major change — Columbus is the capital and largest city of Ohio, while Sturgis is a small town of about 10,000. It is 45 miles south of Kalamazoo, 40 miles northwest of Elkhart, Indiana, and three hours and a time zone away from Chicago.

Ripp is accustomed to moves. The Long Island native began at Grumman Olson in Montgomery, Pennsylvania, in 1972, transferred in 1975 to its now-closed Garden City, Long Island, building, then, in 1978, went to Grumman Flxible in Delaware, Ohio.

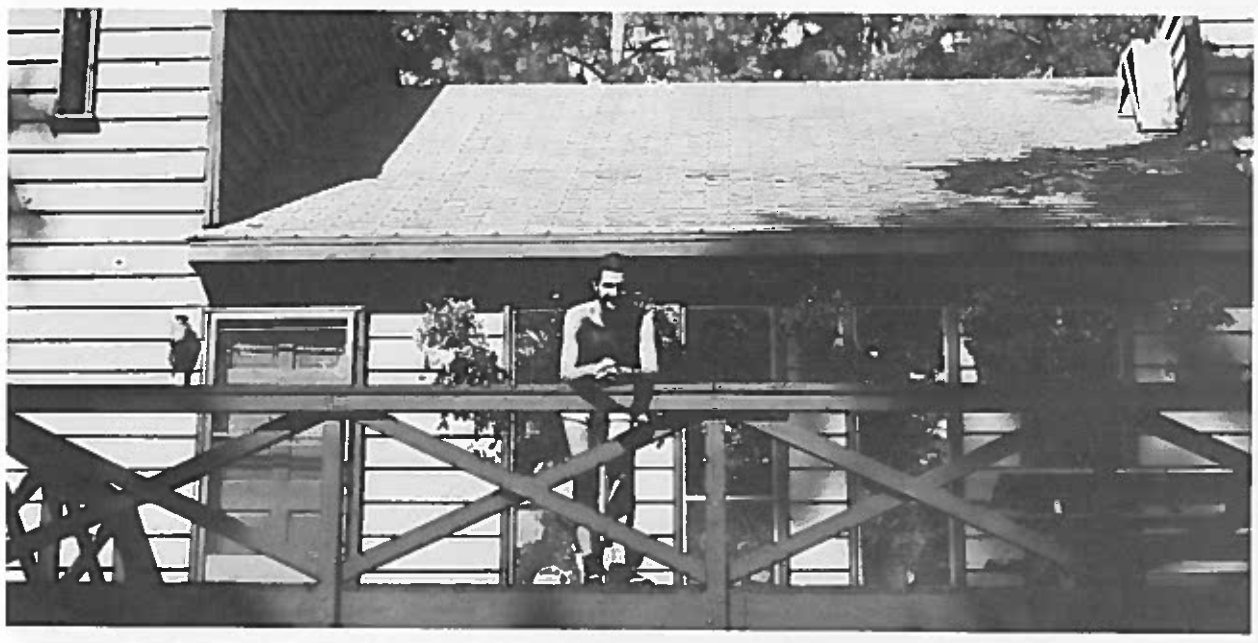
When that subsidiary was sold, Ripp moved to Sturgis. He's now Olson's director of Quality Assurance, and resides in Elkhart, Indiana.

"I brought the family out for a weekend to take a look and see if we'd like it," says Ripp. "You've got to include the family on the decision. The whole family must be positive. We never put down a deposit until we showed the kids around and made sure they would be happy."

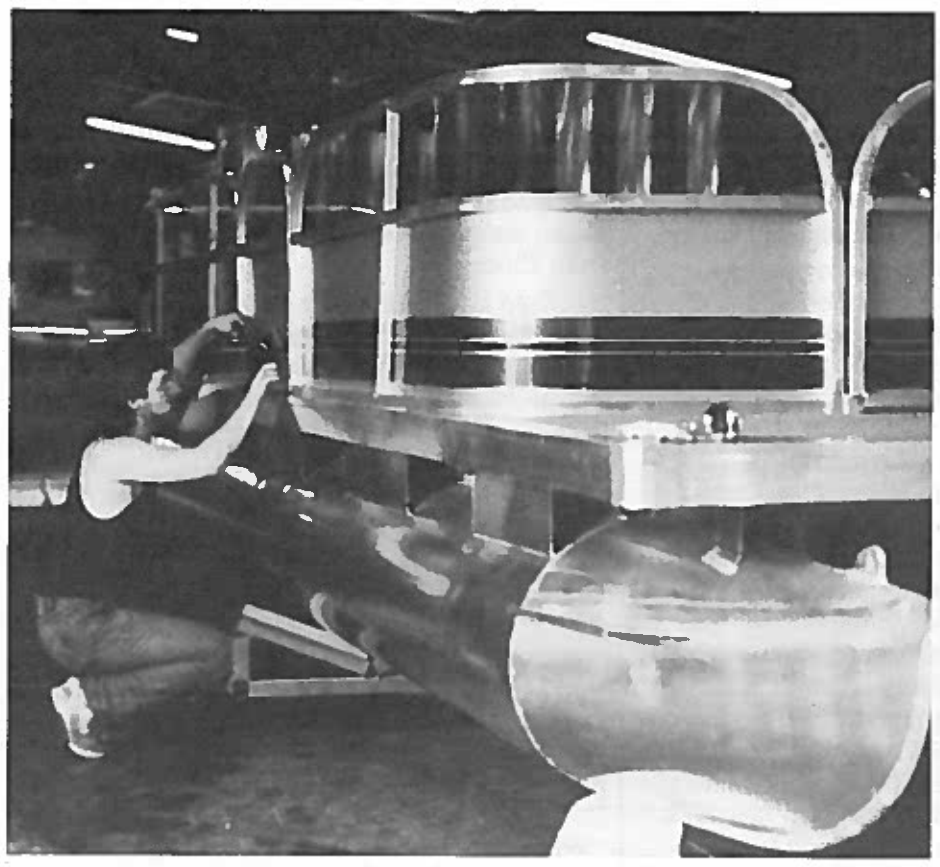
Midwestern winters take getting used to. "When they broadcast flurries here, you have to scrape six inches of snow off your car," says Ripp.

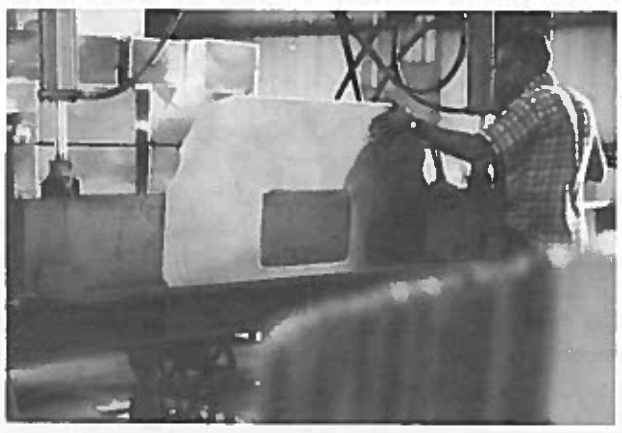
It's also a cultural adjustment. There are plays in Chicago and at such local colleges as the University of Notre Dame, but "it isn't Broadway," says Ripp. "Then again, we didn't go to see Broadway plays that often. The biggest thing we miss about New York is the bakeries. They don't have 'em in the Midwest. You can't buy pastries on Sunday."

Ripp says attitude is the key to a successful relocation. "You've got to have a positive attitude about the move," says Ripp. "Once you make that effort to make new friends, to really put down roots in the new place, you and your family will really come to enjoy it. On the other hand, if you're negative about it, you're in for a terrible time." ■



Grummanites On The Move. *John Noack (above) relaxes on the deck of his Milledgeville, Georgia, house. At right, Bunny, Cary Ann, Rich, and Chip Ripp enjoy living in Elkhart, Indiana — 45 miles from Grumman Olson in Sturgis, Michigan. Above right, Paul Turtzo visited the palace gardens in Shiraz, Iran, in 1976.*





Final touch. *Philip Posey (above) puts striped decals on a Funship party boat. At right, Butch Smith uses a press to make floor parts for bass boats.*

The Steamboats Are Gone, But Arkadelphia's Home Port For New Fleet Of Vessels

ARKADELPHIA, Arkansas — On a bluff overlooking the Ouachita River, this town was an important landing for steamboats in the 19th century. It flourished into an agricultural and industrial center producing aluminum, clothing, wood products and ball bearings. However, in recent years, the town has been hit by hard times.

Several big employers in the county have closed their doors in the past two years. The largest active mill just announced that it too will shut down next March. However, a newcomer has offered an upbeat note in the region's sagging economy: Grumman Boats.

Grumman Allied's Boat unit opened its Arkadelphia plant in 1984, and it has been steadily growing ever since. Today, there are 50 people working here. During peak months when big orders must be filled, Grummanites work six days a week, 10 hours a day. This year, 4,000 boats will roll off the line at Arkadelphia.

"Our business has increased 40 percent in 1986; we anticipate growing another 30 percent in 1987," says general manager Russ Hewitt.

He attributes that growth to Grumman's aggressive marketing and its commitment to offering the best product at a reasonable price. "There has been no new market expansion in the aluminum boat industry," says Hewitt. "Grumman has managed to 'steal' customers from the competition by offering a quality boat that's priced right."

Right now, Grummanites in Arkadelphia are busy filling 1987 orders for boat dealers. The 1987 line, which debuted at regional and national boat shows over the past three months, generated over $7 million in new orders. That doesn't include reorders which are generally placed after the beginning of the new year.

Back in 1984, Grumman entered a new market when it bought an existing jon boat firm here. "Jon boats are very popular fishing boats — especially in the South," says Hewitt. "Their flat bottoms make it easy to navigate the shallow, tree-stump-filled lakes found in this region of the country."

The flat surface also provides a steady platform for anglers, who like to stand up and reel fish in. Jon boats are built tough, but carry a light price tag, ranging from $350 for an 11-foot model to $2,000 for the top of the line 24-foot commercial model.

Grumman has sold over 6,000 jon boats since entering this market. All jon boats are built in Arkadelphia, while Grumman Boats Marathon (N.Y.) facility builds the V-hull boats and canoes.

The company has taken the jon boat design a few steps further and introduced a new line of boats dedicated to sport fishing. Grummanites here are especially proud of their home-bred bass boats — from the top of the line 17-foot Outlaw SX to the economical 15-foot Champ.

Since their introduction in 1985, over 1,000 bass boats have been produced here. The most popular model, the Renegade, ranges in price from $5,595 to $7,000, depending upon the engine and options. This 16-foot bass boat features two casting platforms, an aerated livewell, and a trolling motor. It can handle a 70-hp engine. A trailer is included in the package, too.

Every year, key members of the production team get a chance to help design the new line. They get a kick out of building prototypes. Ideas are bantered about; discussions continue through coffee and lunch breaks.

"It's fun and challenging when you build a new boat, but there is also a lot of trial and error," says leadman Randy Shehane.

Shipshape. *Since Grumman Boats opened its Arkadelphia, Arkansas, facility in 1984, it's been growing steadily ever since. This year, Grummanites in Arkadelphia will build 4,000 boats — ranging from jon boats to pontoon party boats. A mile north of Arkadelphia is DeGray Lake (above) a 13,400-acre man-made lake where Grumman tests its latest boats. At right, a Grummanite welds the front end of a bass boat.*

"Everyone comes up with suggestions on how to make it better," adds leadman Dave Shaw. "We can't just design a great looking boat — we also have to build a safe boat."

A year ago, the Grummanites helped design a prototype for the new Funship line — pontoon party boats. They came up with a winner. Since it was introduced in January of this year, over 400 Funships have been sold. The demand for these pleasure craft is so strong that a second production line was recently started at Grumman Boats' facility in Marathon.

In Arkadelphia, there is plenty of room set aside for the production of these vessels. Half-finished pontoons stand side by side; they look like missiles lined up in an armory. A stockpile of pontoon ends is always ready. Because finished pontoons can be over 23 feet long, they are not built until a Funship is ready for assembly.

Even though the Funship line is less than a year old, Grummanites have already streamlined the production flow. It now takes two hours to build a Funship; four or more boats a day roll out of the building during peak periods.

In one corner of the shop, a machinist bends the parts and railings which eventually make up the main frame and canopy of the party boats. Welders team up to bend, clamp and weld the pontoon noses. A few minutes under the torch and another pontoon section is ready.

Once the pontoons are attached to the main frame, the boat's floor — huge pieces of weatherproof plywood — is added. Then, it's rug cutting time. A giant roll of outdoor carpeting is cut and glued on the floor.

While the glue dries, electrical installers move in and put the lights and other accessories on. After the railings, Grumman decals and spiffy stripes are put in place, the seats, steering wheels and canopy and other accessories are loaded on the Funship and it's ready for delivery.

"On our Funships, 21-inch pontoons are the standard," says Hewitt. "The competition uses 19-inch pontoons; 21-inch is optional. The larger pontoons allow for more carrying capacity — and our quality of workmanship is excellent."

Others have taken notice of Grumman Boats recent surge in the industry. "Since we opened our doors in Arkadelphia, over 150 new dealers from Florida to southern California have signed up to carry the Grumman line," says Hewitt. "Both Yamaha and Suzuki feature our boats in their engine catalogs. We've definitely become a force to reckon with."■

Floating Along. *Grumman welder Herman Howard works on a Funship pontoon. All Grumman pontoons are 21 inches wide. Others in the industry make their pontoons only 19 inches wide; 21-inch pontoons are a special order.*

Nothing But Quality Boats: Buddy Doesn't Sell 'El Cheapos'

TEXARKANA, Texas — "I'll be with you in a minute, just after I skin this fellow," says Buddy Rogers. "We've gotten so good at skinning people, they don't even bleed."

The customer laughs. He's been coming to Buddy Roger's Ark-La-Tex Marine Sports Center for years. The boat dealer is anchored here in Texarkana, which is about 75 miles down the interstate from Grumman Boats' Arkadelphia, Arkansas, facility.

At Ark-La-Tex, a fresh pot of coffee is always brewing and two overstuffed sofas are littered with boating magazines. An arm's length away are its big, top-of-the-line fiberglass beauties. A few stools are near the cash register for customers who want to shoot the breeze.

This down-home approach has paid off for Rogers. His 25-year-old business is thriving: sales last year topped $758,000. Not bad, considering the depressed oil economy in Texas. "Throughout the state, business has been spotty," says Rogers, who is the president of the Boating Trades Association of Texas. "But we're having the best year we've ever had."

Rogers attributes this success to the tristate region's economy. His dealership is on the Texas border of Texarkana, near where Arkansas, Texas, and Louisiana meet. "We're not oil-dependent here," says Rogers. "Our unemployment is lower than other parts of Texas. Out in the middle of the state near Odessa, they are just dead in the water. On the other hand, I talked to the dealer in Amarillo, and he said they're just having a fantastic year — and they have to go 250 miles to get to water there."

Two years ago, Ark-La-Tex began offering the complete Grumman Boats line, ranging from the flat-bottom jon boats to the new pontoon party boats introduced earlier this year. Out back, a crew is busy assembling a brand new Funship.

"We don't carry any 'el cheapos' — we only carry quality boats," says Bruce Pilgreen, Rogers' son-in-law.

"For 25 years, Buddy's was like a car dealer that only handles Lincolns and Cadillacs. However, we didn't attract the average, first-time boat buyer. We decided to take on the Grumman line because it was priced right for those buyers. I'm not saying your boats are cheap quality — I'm saying they are priced right."

Pilgreen says that many first time boat buyers opt for aluminum boats because of their good price and durability.

"Take the Grumman Rogue bass boat outside," says Pilgreen. "I can offer that little Rogue with a 28 hp Evinrude in a super package for $4,295. Now that's rigged with a trailer and trolling motor, and it's pretty hard to beat.

"It's a good drawing card," says Pilgreen. "I can get the first-time buyer into the showroom. Sometimes, they might step up to the competitor's $15,000 Bass Cat. More likely, they'll start boating with a Grumman and hopefully, buy up later. They're getting a well-made boat in a very attractive price range."

'Throughout the state, business has been spotty. But we're having the best year we've ever had...We're not oil-dependent here.'

Man-made lakes in the region also make aluminum boats popular. There are thousands upon thousands of tree stumps in these lakes. Ark-La-Tex customers need a very durable water craft and the Grumman aluminum boats are tougher than the lower-priced fiberglass boats.

"Some companies enter the fiberglass boat market with a flashy looking boat — and a thin hull. With the stumps in our lakes, those companies are soon out of business. Build a good quality boat that's reasonably priced and you do very well."

Pilgreen says that his competition — the nationwide Bass Pro Shop — has helped spur aluminum boat sales at Ark-La-Tex. "Bass Pro has the biggest advertising campaign in the country. A guy sits down and looks through their beautiful, full color, expensive catalogs. He can't travel up to Missouri to see the finished product, so he stops by here."

Pilgreen can always tell when customers have been thumbing through a Bass Pro catalog. "They come in here, and say, 'Do you have something like the Bass Tracker?' and I say, 'Sure, that little Grumman out there.' Grumman has allowed me to stay in that $4,200 price range."

The new Grumman pontoon line has really been going strong, says Pilgreen. "We can offer the Grumman Funship with a 28 Evinrude on it — plus a trailer — for $5,995."

His last Grumman Funship pontoon boat is being prepped out in the boatyard. It's got a 90 Merc on it, and a trolling motor on the bow. The new owner is eager to christen the boat with some good bass fishing this weekend with his family.

"Right now, I need another Grumman pontoon boat," says Pilgreen, as he makes a note to call Arkadelphia later that morning. "It's a real good show piece to have on the front lot."

Service Milestones

45

Stanis F. Coryell, Des. Eng., Bethpage, Space
Irving E. Kreutel, Plann. & Cont., Bethpage, Aircraft
Albert R. Lopez, Latin Am., Bethpage, International

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Kenneth R. Johnson, Wing Inner Panel & Comb., Bethpage, Aircraft
Edward R. McNally, Trans. Office, Bethpage, Aircraft
Edward J. Stachnik, Mech. Insp., Bethpage, Aircraft
Robert A. Veitch, Struct. Des., Bethpage, Aircraft
Ralph Waters, Struct. Subs., Bethpage, Aircraft

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Robert Alleva, Simul. Sys./Ops., Bethpage, Aircraft
Richard Bartick, Prod., Pt. Mugu, Aircraft
Quincy Bauer, Insp. Elect., Great River, Electronics
Harold Baumann, Maint., Melville, Services
Harry W. Bratchie, Salary Admin., Bethpage, Services
Lawrence Brazel, Des. Eng., Bethpage, Aircraft
Harry Buhrandt, Proc. & Cont., Bethpage, Aircraft
Alexander Caramanica, Proc. & Cont., Bethpage, Aircraft
George Clark, Crew Sys./Equip. Integ., Bethpage, Aircraft
Anthony S. Claro, Proj. Mgmt., Melville, Aircraft
Salvatore Cordaro, Calverton Ops. Mgmt., Calverton, Aircraft
Ralph D. D'Micco, Stress Relieve & Hot Form, Bethpage, Aircraft
John M. Darrin, Detail, Bethpage, Aircraft
Alfred C. Falkowski, Paint, Calverton, Aircraft
Richard G. Fossing, Assembly Methods, Bethpage, Aircraft
Ralph C. Galasso, Elect. Fab., Bethpage, Aircraft
Frank R. Gregory, Trans. Office, Calverton, Aircraft
Douglas R. Hill Jr., Out-Of-Prod. Spares, Bethpage, Aircraft
Edwin Lobl, Personnel Liaison, Bethpage, Aircraft
Adolph McKnight, Prod. Cont.-Parts Cont., Bethpage, Aircraft
Albert R. Mead, Corp. Svc., Bethpage, Services
Thomas Nogan, Prod. Cont.-Parts Cont., Bethpage, Aircraft
Frederick L. Opfer Jr., Maint., Bethpage, Services
Jesse L. Regensburg, Supt. Equip. Prod., Bethpage, Aircraft
William Riehl, Prog. Contracts, Bethpage, Aircraft
Robert Rietschel, Center Section Final, Bethpage, Aircraft
George E. Ruggles, Elect. Insp., Bethpage, Aircraft
John P. Sapieta, Maint. Admin., Bethpage, Aircraft
Arthur T. Seaman, Ind. Eng., Calverton, Aircraft
Irwin Solomon, Adv. Prog., Melville, Aerostructures
Joseph F. Specht, Matl. Offsite Supt. Cont., Bethpage, Aircraft
Alfred Speranza, Mech. Struct. & Proto., Bethpage, Aircraft
Meador P. St. Clair Jr., Qual. Eng., Bethpage, Aircraft
William Tumilty, Whse., Bethpage, Aircraft
Gustav Wagner Jr., Assembly Methods, Bethpage, Aircraft
Raymond Waters, Bldg. 14/26 Inst. Mgmt., Bethpage, Aircraft
John A. Zator, F-14 Mod Build-up, Calverton, Aircraft
Douglas T. Zorie, Prod., Pt. Mugu, Aircraft

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Martti Abrahamson, Fiberglass Layup & Bond, Milledgeville, Aircraft
John S. Altmann, Instruct./Analysis, Bethpage, Aircraft
Leonard Ambrosino, Employee Svc., Bethpage, Services
Richard Arso, Maint, Bethpage, Services
Richard A. Banger, Facil. & Equipment Plan., Bethpage, Aircraft
Allen E. Brown Jr., Wood Shop, Bethpage, Aircraft
Harold R. Cherveny, Meas. Std. Lab., Bethpage, Aircraft
Christian W. Clamser, Prod. Plt. Mgmt., Bethpage, Aircraft
Jack J. Corrado, Assembly Methods, Bethpage, Aircraft
Frank Distefano, Tech. Reqmts., Melville, Aircraft
Thomas Fattoruso, Tool Cont., Bethpage, Aircraft
Clement Fernandez, ILS Supply Ops. Proj. Mgmt., Melville, Aircraft
Philip M. Francavilla, Flt. Ops. Insp., Calverton, Aircraft
Richard K. French, Funct. & Proj. Admin., Bethpage, Aircraft
Lawrence B. Gafney, A-6/EA-6B Teardown, Calverton, Aircraft
Jack L. Gamble, Material Ops., Calverton, Aircraft

F. J. Bitz

V. J. Bruno

E. Brandis

H. G. Brohm

A. R. DeLucia

W. O. Dehner

D. M. Fichtenmayer

G. R. Giroux

C. B. Kirschen

J. E. Kmiecik

J. J . Marek

R. A. Martinez

M. B. Shedrofsky

C. M. Smith

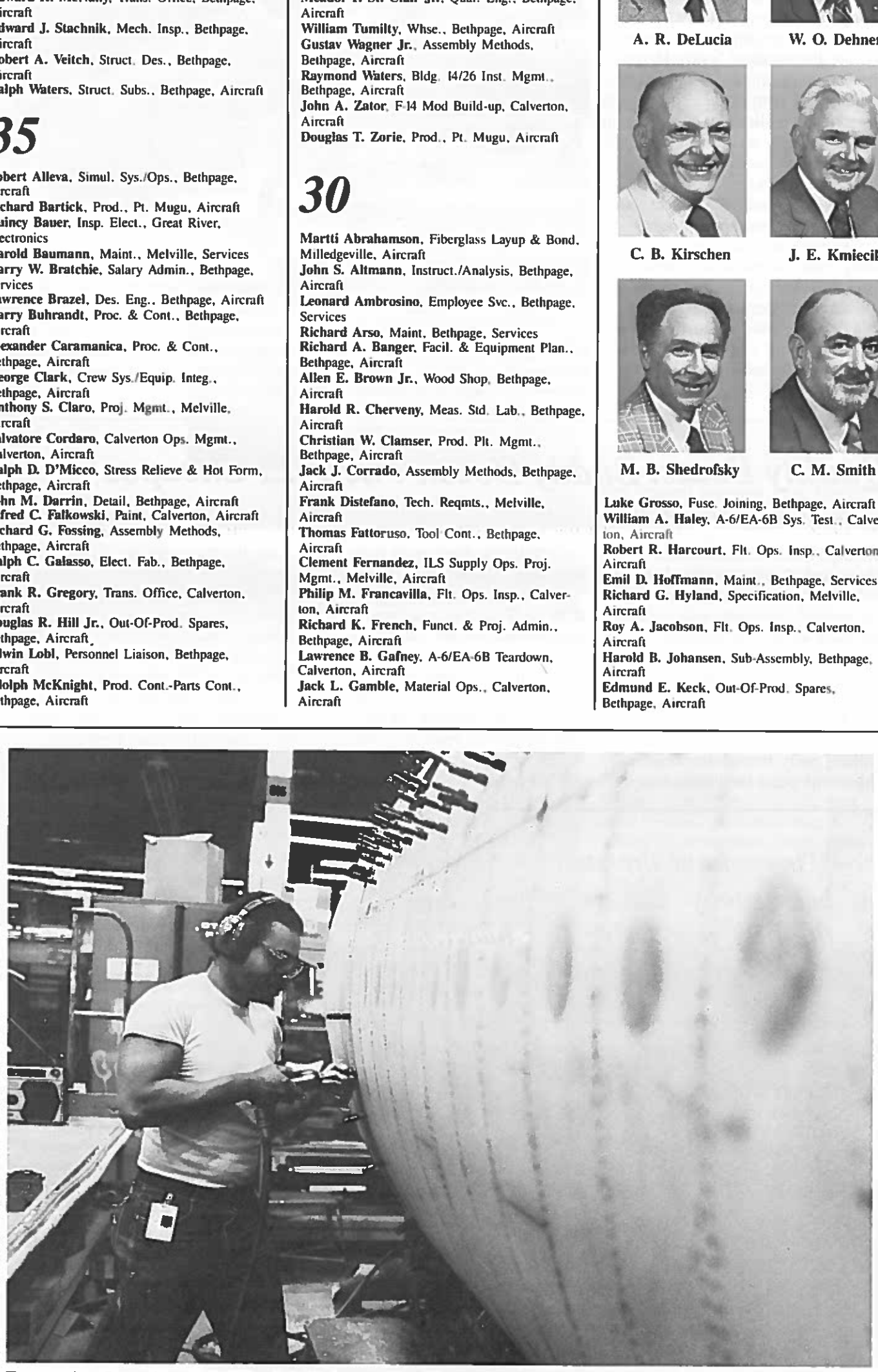
L. Smith

A. A. Tepedino

Luke Grosso, Fuse. Joining, Bethpage, Aircraft
William A. Haley, A-6/EA-6B Sys. Test., Calverton, Aircraft
Robert R. Harcourt, Flt. Ops. Insp., Calverton, Aircraft
Emil D. Hoffmann, Maint., Bethpage, Services
Richard G. Hyland, Specification, Melville, Aircraft
Roy A. Jacobson, Flt. Ops. Insp., Calverton, Aircraft
Harold B. Johansen, Sub-Assembly, Bethpage, Aircraft
Edmund E. Keck, Out-Of-Prod. Spares, Bethpage, Aircraft
Vincent R. Lent Jr., Eng. Test, Great River, Electronics
John A. Lund, Production Prog., Bethpage, Aircraft
Loretta Marshall, Personnel Mgmt., Bethpage, Services
Gerard R. McMahon, Records Mgmt., Bethpage, Services
Edgar McKelvay, Maint., Bethpage, Services
George W. Menier, Mech. Detail & Finish, Great River, Electronics
Edward C. Merriam, Conf. Data Mgmt., Bethpage, Aircraft
Arthur Minardi, Flt. Dev. Ops., Calverton, Aircraft
William J. Moylan, Prod. Rel. & Analysis, Calverton, Aircraft
John P. Pekar, Ops. Mgmt., Milledgeville, Aircraft
Douglas F. Ports, Paint, Calverton, Aircraft
Thomas Rebele, Assemblies, Bethpage, Aircraft
Maximilian J. Riedener, Cent. Storage & Retrieval, Bethpage, Aircraft
Gerald G. Saulter, Mfg. Prog. Mgmt., Bethpage, Aircraft
Walter C. Schnaderbeck, Site Mgmt. Bldg. 561, Stuart, Aircraft
George W. Schwarze, Prod. Assurance, Melville, Melbourne
James R. Szegfu, Avionics Inst., Bethpage, Aircraft
Stanley Thorsen, Mach. Oper.-Parts Cont., Bethpage, Aircraft
Joseph S. Truncale, Mech. Struct. & Assemblies, Great River, Electronics
Richard H. Vanarsdal, Final Assembly, Bethpage, Aircraft
Joseph W. Vautrin, Invent. Mgmt., Great River, Electronics
William E. Yearsley, Mech./Hyd. Lab., Bethpage, Aircraft
Frank Zaleski Jr., Prog. Matl., Melville, Aircraft,

25

Frederick J. Bitz Jr., ILS Pubs. Cont., Bethpage, Aircraft
Vito J. Bruno, IRM Mgmt., Bethpage, Data
Edward Brandis, Mech. Struct. & Proto., Bethpage, Aircraft
Henry G. Brohm Jr., Prod. Supervision, Great River, Electronics
Robert O. Burnsides, Ops. Summary, Holtsville, Data
Charles S. Cahn, Avionics Des. Proj. Mgmt., Melville, Melbourne
Errol L. Carr, Maint., Bethpage, Services
William J. Crabill, Prog. Qual. Mgmt., Melville, Aircraft



Fasten-ating Operation. *In Building 2 in Bethpage, Alton Finney rivets outer panels onto the fuselage of an E-2C Hawkeye. Many of the major subassemblies are constructed here, then are shipped to the other side of the Bethpage airfield to Building 4 for final assembly. (Photo by Bob Saglíocca)*

C. S. Cahn

E. L. Carr

W. J. Crabill

J. N. Danza

T. C. Graziose

R. E. Helgesen

R. L. Hoffer

J. E. Jeransky

F. J. Nosek

J. M. O'Shea

W. F. Oechsler

F. G. Puglisi

L. J. Tribuzio

M. E. Tricarico

L. H. Wright

John N. Danza, Prod. Cont. Maj. Assembly, Bethpage, Aircraft
Albert R. DeLucia, ILS Supply Ops. Proj. Mgmt., Melville, Aircraft
William O. Dehner, Prop. & Spec. Progs., Bohemia, Aircraft
Donald M. Fichtenmayer, Conventional Mach., Bethpage, Aircraft
Gregory R. Giroux, ILS Ops. Supt., Bethpage, Aircraft
Thomas C. Graziose, Assemblies, Bethpage, Aircraft
Robert E. Helgesen, Conf. Data. Mgmt., Melville, Aircraft
Charles E. Hocker, Supt. Eng., Calverton, Aircraft
Robert L.Hoffer, Methods Eng.-GSE, Great River, Electronics
John E. Jeransky, Proc., Los Angeles, Aircraft
Charles B. Kirschen, Computer Equip, Bethpage, Aircraft
Joseph E. Kmiecik Sys. Eng., Woodbury, Data
John J. Marek, Pres. Svcs.-Photo Lab., Bethpage, Services
Rafael A. Martinez, Advance Plan., Bethpage, Aircraft
Michael Miliore Jr., Electro/Mech. Des., Melville, Aircraft
Francis J. Nosek, Matl. Systems, Bethpage, Aircraft
John M. O'Shea, Audit Liaison, Bethpage, Aircraft
William F. Oechsler, Elect. Liaison Eng., Great River, Electronics
Anthony Ortiz, ILS Tech. Illus., Bethpage, Aircraft
Frederick G. Puglisi, Marketing, Melville, Electronics
Morton B. Shedrofsky, Prog. Qual. Mgmt., Bethpage, Aircraft
Charles M. Smith, Procedures & Cont., Bethpage, Aircraft
Loretta Smith, Secty. Serv., Bethpage, Aircraft
Ardith A. Tepedino, Exec. Staff, Bethpage, Space
Luca J. Tribuzio, Prod. Supervision, Bethpage, Aircraft
Michael E. Tricarico, Marketing, Bethpage, Aircraft
Leonard H. Wright, Aircraft Performance, Bethpage, Aircraft

Do You Want To Kick Smoking?

Grumman is once gain offering all Grumman smokers a chance to stop smoking via the American Cancer Society's FreshStart program.

New sessions begin every week. Designed to help people stop smoking and stay off cigarettes, the program consists of four one-hour, small-group sessions over a two-week period.

Depending on the number of Grummanites who sign up, the sessions take place on company property after workhours. For every Grummanite who completes the four-session program, Grumman will donate $25 to the American Cancer Society.

If you are interested in participating, fill out the form on this page and mail it to : Quit Smoking, A42-GHQ.

Quit Smoking

Name _____

Mail Station_____Plant_____

Workshift (hours)_____Ext._____

Mail to: A42-GHQ

Scenic Backdrop. *Bob Sheets, Grumman field office manager in Colorado Springs, visits the U.S. Space Command, located near Pikes Peak.*

Field Managers Keep Tabs On Customers' Needs

COLORADO SPRINGS, Colorado — With briefcase in hand and strategy planned out, Bob Sheets heads for the sprawling headquarters of the U.S. Space Command.

As field office manager, Sheets is Grumman's eyes and ears in Colorado Springs, where space is the main local industry.

Sheets makes it his business to know everything about a customer so he can keep his company well informed of possible business opportunities. He's an aggressive go-getter; he has the manner of a born salesman. He's also an expert on the latest space developments; he knows what will sell, what won't, and what the competition is up to.

"I'm not selling a product, I'm selling a Grumman capability — whether that be space, aircraft, data systems, or all three," says Sheets. "Because I have developed a close relationship with the people at the Space Command, I can better understand their requirements for new space systems. And they, in turn, get to know what Grumman can do."

Grumman began building its nationwide network of marketing offices about five years ago. According to John Papazian, director of Corporate Regional and Field Offices, there are 23 corporate development and five regional offices throughout the United States. Most of the managers have an average of 25 years in the aerospace industry.

Sheets describes the field office managers as Grumman's front line troops, with the regional offices backing them up. "I have a pulse on the customer's needs because I work right in his backyard," says Sheets. "Grumman has many years of diversified experience. This makes it easy to match a customer's requirements."

Sheets and his 22 counterparts throughout the country keep abreast of other companies' marketing efforts by reading industry periodicals and independent surveys, attending conferences, visiting the local library, and simply getting to know their peers. In Colorado, competition is fierce — corporations such as Lockheed, Boeing and Rockwell are also vying for space contracts.

In addition, field office personnel save Grummanites travel time and energy by helping them out before they reach their destination. "Before Grummanites come to Colorado, I'll set up hotel reservations and arrange for them to meet with the right people," says Sheets. "And after they leave, I'm able to follow up for them if they need more information."

Sheets never has to travel far to visit potential customers. Another nearby customer is the North American Aerospace Defense Command (NORAD).

"If you've ever seen the movie 'War Games,' you know how tight security is at NORAD's Cheyenne Mountain Complex in Colorado Springs," says Sheets. "Grumman Data Systems would like to upgrade NORAD's defense warning system. My job is to convince NORAD that Grumman can give them the best product."

Space Command has a strong interest in developing the requirements for NORAD's Air Defense Initiative (ADI) program. ADI will use the latest in radar technology — and systems technology Grumman has developed for the E-2C Hawkeye may be just the ticket.

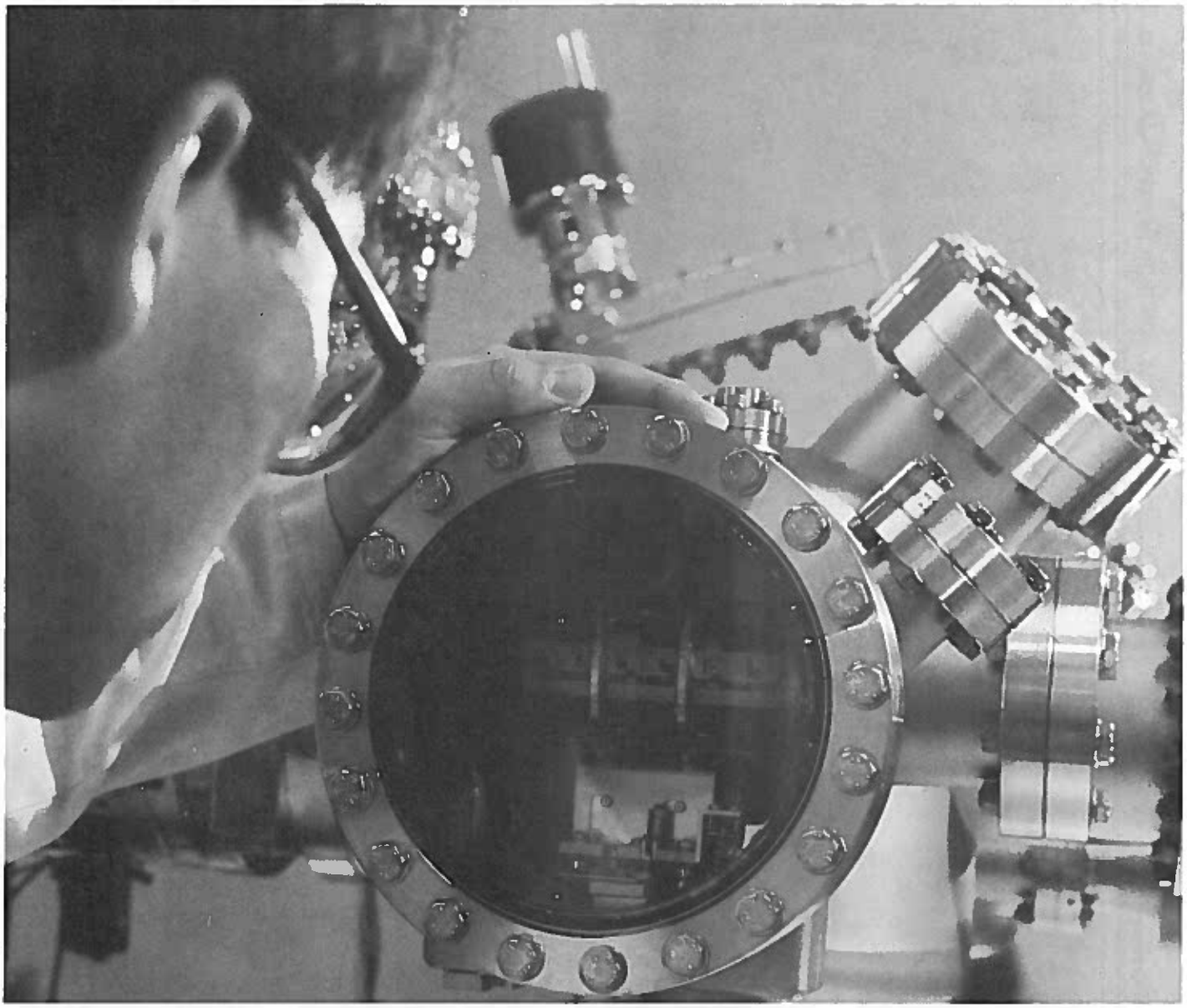
More business opportunities are expected when the Consolidated Space Operations Center (CSOC) becomes fully operational in Colorado Springs in the early 1990's. This will be a military version of NASA's mission control center in Houston.

In addition to identifying lucrative opportunities, the field personnel help save the company from wasting time, effort and money on futile projects.

"Acting as a go-between, the field office managers provide quick and accurate information to both the customers and to other Grummanites," says Papazian. "They can help management determine when to stop an effort, or when to go full force when the opportunity looks good."

To receive a booklet listing all the Corporate Development sites, contact John Papazian, mail stop A17-25, Ext. (111) 53265, or (516) 575-3920.■

GrummanWorld
October 24, 1986



(Photo by Rich Breunig)

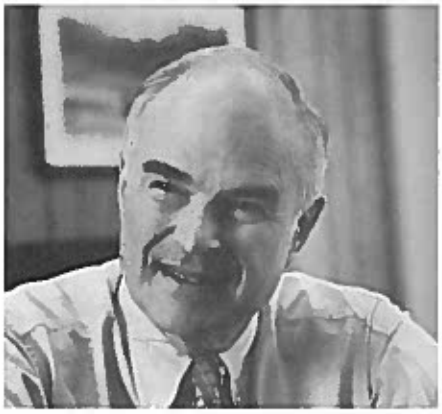
The Future Looks Crystal Clear

Grumman research scientist Myung Lee looks into the molecular beam epitaxy machine, which will soon be growing high-quality single crystal semiconductors. These sophisticated semiconductors will be used in the development of infrared detectors for aircraft and space technology.

The machine will go into operation in early November. It uses molecular beam epitaxy, a technology that forms crystal layers on top of an existing crystal. It is capable of forming a near-perfect crystal because the chemistry and rate of growth can be controlled precisely. Such control isn't possible using older methods.

"Aircraft, Space and Electronics Systems divisions will all benefit from this emerging technology," says Ron Pirich, laboratory head of Solid State Physics and Chemistry at the Corporate Research Center, Bethpage.

A Letter From The Chairman



I've been putting together some notes for a talk I'll give at the State University of New York at Stony Brook on October 22. I've been asked to give my personal views on "Long Island in the Year 2000." I suspect that some of the things I have to say might be disturbing to some Long Island people.

I think Long Island is going to change; I think it has to. And, of course, Grumman on Long Island will change along with it.

It's no secret that in the past 10 years just about all of our new manufacturing plants have been located off Long Island, to areas where the costs are more favorable. And every time we do so, there's a predictable uproar from the Long Island community: They don't think we should "take work away" from the area. The uproar makes Grumman people on Long Island anxious about their jobs.

But most people forget that we have invested and are still investing huge amounts of money in new machinery and general plant modernization on Long Island. The range and depth of experience of our Long Island manufacturing people are of utmost importance to our success. They are the reason we continue to build things here, despite discouraging obstacles.

Everything Grumman makes on Long Island — and everything that we buy from our suppliers here — must be delivered by truck over roads that already look like parking lots. Our energy bills on Long Island are twice as high as those we pay at any of our other facilities.

More significantly, our wage rate here is burdened by the highest living cost of any area in the country.

Nassau County is working hard to attract more manufacturing companies to this area, and I think that is a big mistake. Our roads cannot handle it, our environment cannot handle it, and our public services are already overburdened.

Even though Grumman's manufacturing work force has remained level, this is due to our overall substantial growth. Other Long Island manufacturers haven't been as fortunate — and they've gone through the devastation of plant closings and layoffs. The general trend for manufacturing on the Island has been downward.

I believe that what is happening at Grumman — an increase in engineering and technical jobs — is also happening across the Island. For the most part, electronics work will grow here. The Holtsville computer center looks like a most successful enterprise. Design and engineering jobs will stay. A design done on a computer terminal here can be transmitted over the telephone lines and manufactured anyplace.

The areas to which we have shifted some of our manufacturing have all benefited. Milledgeville, Georgia, and Salisbury, Maryland, for instance, were ready for our arrival; they had plenty of room for us to grow, and the cost of land and buildings was reasonable.

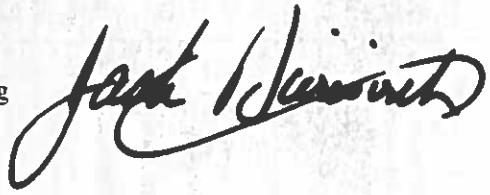
The cost of this type of growth on Long Island would be too high, and make us less competitive. It would also make the Island more congested, increasing the pressure on housing and municipal services and making it a far less desirable area.

Overdevelopment threatens the quality of life on the Island.

Long Island is our primary location. We have a commitment to the work we do on the Island, and to the people who do it. The talent and experience of our Long Island manufacturing people are among our greatest business assets — and I don't see that changing.

But when we talk about expanding, we have to expand in ways that make sense: for the good of our customers, for the good of all of us, and for the good of the communities where we live and work.

Let me know how you feel about this.



John C. Bierwirth
Grumman Chairman

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